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Digital Story Telling Based on Multimodal Elements on EFL Learners' Speaking Performance

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Abstract

This study examined the effectiveness of digital storytelling based on multimodal elements on EFL learners' speaking performance. A quasi-experimental design with a control and experimental group was employed. The sample consisted of 40 students of Teacher Education of Early Childhood Education in a private university in Pontianak. Both classes studied English for Early Childhood Education. Sample in the experimental group was treated by digital storytelling based on multimodal elements and local contents. The control group studied the storytelling based on a conventional video. The ANCOVA test proved that $Sig = 0.000 < 0.05$ means that digital storytelling with multimodal elements effectively enhances EFL learners speaking performance. The descriptive statistics show that students in the experimental group ($M=85.4$) significantly outperformed the control group ($M=76.9$) on their speaking performance mediated by digital storytelling. The students perceived a positive perception of digital storytelling based on multimodal elements in learning English in terms of enjoyment of multimodal features such as visual and auditory and values depicted from local values. The study also explored several perceived obstacles in using digital storytelling in speaking, such as digital and technical literacy, language skill, creativity and innovative thinking, and collaborative learning.

Keywords: digital; storytelling; multimodal; speaking performance

1. Introduction

The dynamic changes of educational technology in language learning have assisted many EFL educators worldwide to be creative to select, provide and utilize the digital platforms in language learning. The rapid advancement of technology should also be synergized with multimodal elements. Educators must adopt and adapt the contextual model of teaching and learning embedded with educational technology as a robust way to improve teaching and learning English quality. It is essential for educators to encourage the practice of teaching and learning embedded with multimodal elements to help EFL learners to be more productive, creative, and critical (Hwang et al., 2016). This current study attempted to examine the effectiveness of digital storytelling incorporated with multimodal elements and local contents. Integrating local content within the digital storytelling can help the students better learn the language as the ideas have a solid connection to their daily, cultural, and social lives. The values depicted from digital storytelling and intrinsic characteristics can be best enriched by the audiovisual images and sounds for English language learning. Digital storytelling with local content contributes values and encourage language repertoire because the medium is shaped with cultural values and expressive imaginations (Anderson et al., 2018)

Digital storytelling can be defined as the cognitive process of narrative stories and amplification in multimodal platforms that highlight the entailment of meaning and values to be meaningful stories (Schmier, 2021). The adoption of digital storytelling in language learning bestows a supportive learning environment for the students to practice their linguistics and communication competence, digital skills, autonomous learning skill, art, and social-cultural approaches based on multimodal approaches (Gregori-Signes, 2014). When students create digital storytelling, they convey their potential ideas and use their best capacity to produce lively digital storytelling. Storytelling can function as a favourable education tool to share knowledge and pass social-cultural heritage to a broader audience and future inheritance

(Smeda et al., 2014). The effect of technological sophistication allows storytelling to be presented through digital media platforms. Digital storytelling provides a meaningful technology by combining texts, images, and audio to be a creative form of storytelling to enhance students' speaking skills (Somdee & Suppasetsee, 2013). By utilizing this technology, the educators can offer the pedagogies possibilities to strengthen their cultural identity in more practical and engaging activities (Staley & Freeman, 2017a).

The application of digital storytelling in English language learning is affirmed by the constructivist learning theory and the multiliteracies of cultural values of the society. The process of learning mediated by digital storytelling can encourage students' personal and cultural identity (Bechter & Swierczek, 2017; Stanley, 2018). The significance of digital literacy is essential as one of the 21st-century life skills for university students since they must be able to address their ideas in the digital platform (Chan et al., 2017). It is also critical that students must be able to develop their storying skills regarding the advancement of technology in language learning (Ribeiro, 2015). Digital storytelling exhibits some benefits for language learning, such as enhancing linguistics communication, digital and learning skills, learning autonomy encouragement, and individual initiative (Gregori-Signes, 2014). Moreover, when students participate in digital storytelling, they can entail multimodal skills in four language skills: listening, reading, speaking, and writing (Widodo, 2016). As a breakthrough in educational technology, digital storytelling can foster transformative-based technological learning that covers substantive material, critical thinking skills, technology literacy, and learning motivation (Moradi & Chen, 2019).

There have been numerous studies researched on the use of digital storytelling in English language learning. Still, few of them analyzed the incorporation of local content and values-based multimodal elements portrayed and integrated into the digital storytelling. Kallinikou & Nicolaidou (2019) researched the use of digital storytelling to scaffold an interactive learning environment and how it enhanced students' speaking skills and motivation by using pretest and posttest. Their research mainly focused on the examination of motivational variables for EFL learners in Russia. They proved that digital storytelling mediated by a web-based learning environment enhanced students' speaking skills for the attributes of grammar, syntax, vocabulary, and pronunciation, and motivation in terms of interest, importance, usefulness, and self-efficacy. Similarly, Arroba & Acosta (2021) examined the effectiveness of authentic digital storytelling for fostering EFL learners' speaking in the university by focusing on communicative strategies. The study's findings emphasized the method of delivery, media used for the storyboard, and delivery of organization and message quality. A study by Hava (2019) explored the cultivation of digital storytelling to students' confidence and attitudes, and it could facilitate language skills learning for a conducive learning environment. Also, a comprehensive systematic review by Nair & Yunus (2021) depicted the landscape of robust data on digital storytelling research to improve students' speaking skills. Most of the studies from Indonesia focused on improving speaking skills in terms of speech abilities. Sanchez-Lopez et al. (2020) researched that the study of creating digital storytelling as a process is still very limited, and digital literacy as one potential obstacle is worth investigating. To contribute to the emerging technology for language learning, this current study aimed to undertake the study to focus on the effectiveness of digital storytelling mediated by local content based on the multimodal elements to improve students' speaking performance in learning English as a foreign language. This study did not merely analyze the effectiveness of digital storytelling on students' speaking performance and perception of its implementation but also entailed the perceived obstacles on the process of creating digital storytelling.

In this study, the lecturer implemented a teaching and learning activity with digital storytelling. The samples of the study were taken from two customized classes from Teacher Education of Early Childhood Education, one as the control group and one as the experimental group. Each class consisted of 20 students. The class was divided into four groups; each group consisted of 5 students. The control group was given materials on conventional storytelling by video, and the experimental group received treatment with digital storytelling with multimodal elements and local contents materials. The lecturer presented the materials for making digital storytelling and provided the topics for digital storytelling. The four topics were the renowned

local cultures such as cultural attraction, culinary temptation, and traditional festivals. Both classes were presented through an online platform. The students then designed the storyboard for digital storytelling collaboratively with their friends. In the final part, both students from control and experimental were assigned to create their storytelling using conventional video and digital storytelling using the PowToon application as the sample given first hand in the classroom. Based on the elucidation above, this study aimed at examining the effectiveness of digital storytelling based on multimodal elements to EFL learners' speaking performance compared to conventional storytelling. The research also explored the students' perception and their perceived obstacles in integrating digital storytelling based multimodal elements in learning English.

The hypothesis for the control group is as follows: null hypothesis: There is no significant difference in EFL learners speaking performance between digital storytelling based on multimodal elements and conventional storytelling, while the alternative hypothesis: there is a significant difference in EFL learners speaking performance between digital storytelling based on multimodal elements and conventional storytelling

2. Method

The method of this research was a quasi-experimental design with a control and an experimental group. A speaking rubric by Cambridge English Qualification: Assessing Speaking Performance – Level A2, which covers speaking performance assessment (Cambridge English Qualification, 2011), was used. The rubric was used to collect quantitative data on students' speaking performance on digital storytelling. Questionnaires on students' perceptions and semi-structured interviews were also used to corroborate the research findings. The relevancy of using this method was in response to the research questions that need the integrations of two forms of data and the results (Creswell & Clark, 2018).

The samples of the study were taken from two customized classes from Teacher Education of Early Childhood Education Faculty by using a non-random sampling technique. Each class consisted of 20 students. A control group was given a lecture on storytelling by using the conventional video. In contrast, an experimental group was assigned to design digital storytelling by incorporating local values based on multimodal elements. The digital platform of digital storytelling utilized PowToon Education.

Teaching storytelling was carried out for both the control and experimental group. Control group activity mediated by storytelling material that consists of deciding stories (topic and plot), making script, creating the videos, and sharing the stories. While, the experimental group received treatment of digital storytelling material consisting of creating digital stories (topic, plot, and media-PowToon education). Local contents were explicitly elaborated with examples and simulations. The sample of digital storytelling talked about cuisine temptation. The lecturer also explained the steps to create digital storytelling using the application, starting from picking slides, elements, actors, and back sound, practising video-over recordings, sharing the video on the YouTube Channel, and providing assessments for students as feedback. After two meetings of treatments, the students were assigned a project to create digital storytelling. After the project was completed, the results were assessed its effectiveness between the control and the experimental group. Furthermore, the students' perception was also asked to posit their ideas on using digital storytelling based on multimodal elements on speaking skills. The final procedures examined students' perceived obstacles when experiencing this activity.

This study sought to examine students' speaking performance using the speaking rubric. The first research instrument was Cambridge English Qualification: Assessing Speaking Performance – Level A2, which covers speaking performance assessment (Cambridge English Qualification, 2011). The second research instrument was the questionnaires about students' perception of digital storytelling based on multimodal elements by 5-Point Likert-Scale. The final research instrument was a semi-structured interview. Data analysis for students' speaking performance consisted of the inter-reliability test, normality test, homogeneity, test of linearity, and ANCOVA. Questionnaires were tested using validity and reliability tests and descriptive statistics of students' perception. The result of the interview was transcribed and coded to

produce the emerging themes. The procedures of thematic analysis adopted inductive and deductive coding by (Xu & Zammit, 2020).

3. Results and Discussion

Before the ANCOVA computation, the first early step was to examine whether the data met ANCOVA analysis's basic statistical assumption. There are statistical assumptions that need to be fulfilled in ANCOVA analysis: inter-rater reliability, normality test, homogeneity of variances test, and linearity test to find out the test of between-subject effects.

The first research question examined the effect of digital storytelling based multimodal elements of EFL learners in their speaking performance. As the test entailed the speaking activity, the pretest and posttest results were examined to determine the inter-rater reliability to avoid bias and subjectivity. The speaking performance test on digital storytelling was given by instruction by the same rubric. The score used a continuum model with a correlation coefficient technique. The correlations showed that rater one dan rater two pretest-posttest experiments, rater one and rater two pretest-posttest control have almost perfect reliability degree based on the interpretation of the level of agreement by (Landis & Koch, 1977).

Table 1. Rater 1 and rater 2 pretest experiment

		Rater1_PreEx	Rater2_PreEx
Rater1_PreEx	Pearson Correlation	1	.935**
	Sig. (2-tailed)		.000
	N	20	20
Rater2_PreEx	Pearson Correlation	.935**	1
	Sig. (2-tailed)	.000	
	N	20	20

** . Correlation is significant at the 0.01 level (2-tailed).

Table 2. Rater 1 and rater 2 posttest experiment

		Rater1_PostE x	Rater2_PostE x
Rater1_PostE x	Pearson Correlation	1	.931**
	Sig. (2-tailed)		.000
	N	20	20
Rater2_PostE x	Pearson Correlation	.931**	1
	Sig. (2-tailed)	.000	
	N	20	20

** . Correlation is significant at the 0.01 level (2-tailed).

Table 3. Rater 1 and rater 2 pretest control

		Rater1_PreC on	Rater2_PreC on
Rater1_PreCo n	Pearson Correlation	1	.866**
	Sig. (2-tailed)		.000
	N	20	20
Rater2_PreCo n	Pearson Correlation	.866**	1
	Sig. (2-tailed)	.000	
	N	20	20

** . Correlation is significant at the 0.01 level (2-tailed).

Table 4. Rater 1 and rater 2 posttest control

		Rater1_Post Con	Rater2_PostC on
Rater1_PostCo n	Pearson Correlation	1	.934**
	Sig. (2-tailed)		.000
	N	20	20
Rater2_PostCo n	Pearson Correlation	.934**	1
	Sig. (2-tailed)	.000	
	N	20	20

** . Correlation is significant at the 0.01 level (2-tailed).

A normality test was conducted to ensure the normality of the distribution of the score. As the sample consisted of below 50 students, the Shapiro-Wilk test was run. Table 5 displays the result of experimental pretest group .0753 (Sig. > α), pretest control group 0.10 ((Sig. > α), posttest experimental group 0.734 ((Sig. > α), and posttest control group 0.128 (Sig. > α). It can be concluded that the score of both the experimental and control group was distributed normally.

Table 5. Test of normality for the experimental and control groups in speaking performance with digital storytelling in pretest and posttest

		Shapiro-Wilk		
	Class	Statistic	df	Sig.
Pretest	Experimental Class	.970	20	.753
	Control Class	.867	20	.110
Posttest	Experimental Class	.969	20	.734
	Control Class	.926	20	.128

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

After the assumption of normality test was fulfilled, a test of homogeneity was run. The output of Sig. based on Mean of the pretest was .221 > 0.05 and posttest .538 > 0.05. the results show that the homogeneity assumption was fulfilled, and the variances were homogenous.

Table 6. Test of Homogeneity of Variances

		Levene			Sig.
		Statistic	df1	df2	
Pretest	Based on Mean	1.547	1	38	.221
	Based on Median	1.858	1	38	.181
	Based on Median and with adjusted df	1.858	1	37.055	.181
	Based on trimmed mean	1.595	1	38	.214
Posttest	Based on Mean	.385	1	38	.538
	Based on Median	.496	1	38	.486
	Based on Median and with adjusted df	.496	1	34.345	.486
	Based on trimmed mean	.392	1	38	.535

Before ANCOVA was conducted, a linearity test was run to examine the linearity of covariate with dependent variables. The table displays the score of pretest as covariate variable with Sig. $0.000 < \alpha 0.05$, which means that there is a linear correlation between the dependent variable.

Table 7. Test of Linearity

Dependent Variable: Posttest					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1821.107 ^a	2	910.554	60.023	.000
Intercept	192.042	1	192.042	12.659	.000
Pretest	1273.507	1	1273.507	83.949	.000
Class	500.010	1	500.010	32.960	.000
Error	561.293	37	15.170		
Total	219650.000	40			
Corrected Total	2382.400	39			

a. R Squared = .764 (Adjusted R Squared = .752)

Tests of between-subjects effects were also used to test the hypothesis. Based on the results, the Sig. of the variable class was $0.000 < 0.05$, which entails that the null hypothesis was rejected and the alternative hypothesis was accepted. There is a significant difference in speaking performance on students between digital storytelling with multimodal approach and conventional storytelling.

ANCOVA was conducted to examine the effectiveness of digital storytelling based on multimodal elements on EFL learners' speaking performance. ANCOVA was run to test the null hypothesis that there is no significant difference in speaking performance on students between digital storytelling with multimodal approach and conventional storytelling. The alternative hypothesis is that there is a significant difference in speaking performance on students between digital storytelling with multimodal approach and conventional storytelling. The output table of parameter estimates shows that Sig = $0.000 < 0.05$, which signified that digital storytelling with multimodal elements effectively enhanced speaking performance to EFL learners.

Table 7. ANCOVA

Dependent Variable: Posttest						
Parameter	B	Std. Error	t	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Intercept	17.161	5.832	2.942	.000	5.344	28.979
Pretest	.815	.089	9.162	.000	.635	.995
[Class=1.00]	7.074	1.232	5.741	.000	4.577	9.571
[Class=2.00]	0 ^a

a. This parameter is set to zero because it is redundant.

The descriptive statistics below shows that the mean score of students' speaking performance in the pretest with conventional storytelling was 55.7, while in the posttest, the mean score was 76.9.

Table 8. Descriptive Statistics of Control Group

	N	Minimum	Maximum	Mean	Std. Deviation
Pretest	20	41.00	70.00	65.7000	9.02103
Posttest	20	70.00	83.00	76.9000	3.71200
Class	20	2.00	2.00	2.0000	.00000
Valid N (listwise)	20				

As revealed by the descriptive statistics of the experimental group, the mean score of students' speaking performance in the pretest was 68.05. In contrast, the mean score of the posttest after treatment with digital storytelling increased significantly to 85.4.

Table 9. Descriptive Statistics of Experimental Group

	N	Minimum	Maximum	Mean	Std. Deviation
Pretest	20	56.00	77.00	68.0500	6.38646
Posttest	20	80.00	92.00	85.4000	3.87162
Class	20	1.00	1.00	1.0000	.00000
Valid N (listwise)	20				

The second research question explored the students' perception of digital storytelling based on multimodal elements in speaking performance. After that, the students were asked to opine their perceptions of the teaching and learning process. The majority of them conveyed strong agreement on using digital storytelling in learning English to enjoy the multimodal elements. They perceive it as good to have digital storytelling as a tool for learning English (M=4.35), they enjoy speaking the stories mediated by digital storytelling (M=4.4), and they enjoy making stories where they combine multimodal elements such as images and visual elements (M= 4.55). Additionally, they enjoy acting out parts of the digital storytelling (M=4.35), and they enjoy learning English with local content in digital storytelling (M=4.35). Finally, they would like to have digital storytelling in learning English (4.35).

Table 10. Questionnaires Items of Students' Perception on Digital Storytelling

No	Items of questionnaire	Mean score	Standard Deviation
1	I have a good perception of digital storytelling as a tool for learning English language speaking	4.35	.58714
2	I enjoy speaking the stories in English with digital platforms	4.4	.50262
3	I enjoy making stories in English with multimodal elements such as images, and visual elements	4.55	.51042
4	I enjoy acting out parts of the stories read by reciting the story	4.35	.58714
5	I enjoy learning English with local content and content in digital storytelling	4.35	.48936
6	I enjoy learning English with multimodal elements	4.5	.51299

7	Visual images make me interested in learning English	4.35	.48936
8	Auditory elements make me interested in learning English	4.35	.48936
9	I would like digital storytelling to be included in learning English.	4.35	.67082

The third research question examined students' perceived obstacles in using digital storytelling based on multimodal elements. The data were taken and analyzed by transcribing and coding procedures of the interview. The procedures consisted of transcribing the interview, assigning categories, coding and highlighting essential themes. Then, the analysis and interpretation were deduced to get the final coding. Students' perceived obstacles are categorized into four main categories, namely, digital and technical literacy, language skills, creativity and innovative thinking, and collaborative learning. The themes can be presented in the following excerpts:

Digital and technical literacy

- P1 When designing digital storytelling, I need more guidance to combine the visual and audio elements for the story.*
- P2 One of the most challenging problems in making digital storytelling is how to select digital platforms for my story*
- P3 I am unfamiliar with digital platforms that combine multimedia elements, so the lecturer needs to posit specific technical steps.*
- P4 It is not easy for me to select and adapt visual elements for the story.*

Language skill

- P1 I still have lack of confidence to produce a suitable tone for my story.*
- P2 Fluency is the biggest fear when creating digital storytelling because the message delivery cannot run well without fluency.*
- P3 Hesitation when pronouncing the words exists. I tended to use isolated words*
- P4 I find it challenging to create ideas by using a string of sentences.*

Creativity and innovative thinking

- P1 Exposure of story, plot, and organization is needed. We need more practice of how to use artistic skills.*
- P2 It must previously happen of a brainstorming activity to bring new ideas presented in the story.*
- P3 The lecturer must provide feedback on the process of creating the story.*
- P4 The initial learning process should provide imagining and questioning activities and simulate the storyboard.*

Collaborative learning

- P1 I think the group must consist of mixed-ability students to learn from better role models when acting out the story.*

- P2* When there is no fixed rule of collaborative elements integrated into the digital storytelling, some voices were unheard, while others were dominant.
- P3* Some members are still mutually independent; they were reluctant to give evaluation and feedback.
- P4* Work division means an equal part of the storyboard and focuses on the overall process and the final product of digital storytelling.

In language learning, stories have been a spot for creative learning due to their versatility (Kingsley et al., 2019), especially in the development of technology that leads to create digital storytelling and benefit the students to develop multiliteracies, culture learning, and encourage motivation (Barkhuizen, 2018). The primary data sources indicated that digital storytelling based on multimodal elements and local content significantly enhanced students' speaking performance. The result of the study was corroborated with a previous study by Yang et al. (2020) that revealed authentic stories depicted from local cultures could create a meaningful learning ambience that automatically enabled the students to experience practical and creative English language learning. This empirical result implied that authentic material attributes for digital storytelling were worth considering when educators applied digital storytelling for language learning. In terms of assessing the speaking performance, this current study examined the speaking performances on the aspects of grammar, vocabulary, pronunciation, and interactive communication based on Cambridge English Qualification: Assessing Speaking Performance – Level A2 (Cambridge English, 2011). The consideration was based on the characteristics, the skills, and the instructional objectives set for this study. Interestingly, some other studies used a different rubric to assess the students' speaking performance, one of which was a study by Kang & Kim (2021), who examined the predicting factors, namely, the assessment of the language by using an analytic rubric. They investigated the multiple models of digital storytelling for the students. The results can be used to analyze the compatible predicting factors of utilizing language learning for the learners. Therefore, future researchers can consider the compatibility and suitability of the rubric when assessing students' speaking performance by conceiving the attributes of the EFL learners.

In this study, the students were exposed to the technical and substantial skills to create digital storytelling by utilizing multimodal elements such as visual and auditory elements. On the one hand, EFL learners who undergo the process of online digital storytelling could improve their literacy skills and technology literacy as the technical skills as they spend more time with technology in the process of making the digital storytelling (Rahimi & Yadollahi, 2017). On the other hand, the students played their role in activating and embodying the stories to gain substantial skills. They learned collaboratively to select the material, make the plot, write the script, and simulate the story's narration. Learning activity mediated by digital storytelling can situate the creative process of selecting a topic, penning a script, and relating a lively tale; it can also arouse students' engagement to perform outstandingly speaking skills (Razmi et al., 2014). Interestingly, when the students created digital storytelling, they were also exposed to collaborative learning. Hence, the learning theory underpinning digital storytelling can be related to social constructivism learning theory based on Piaget's cognitive theory view that language learning can function in social interaction (Cohen, 2009). Vygotsky (1978) argued that the way learners construct knowledge, think, reason, and reflect on is uniquely shaped by their relationship with others. Through digital storytelling via PowToon, students can be encouraged to achieve developmental milestones through social and peer interaction. The EFL learners will undergo the learning process where they can strengthen the bonds between teacher and student and students with students to assist disabled students or students with learning difficulties (Psomos & Kordaki, 2012). From this theoretical framework, learning with digital storytelling is the outcome of learning with dialogical interactions between learners who were engaged and motivated in knowledge formation (Niemi & Multisilta, 2016)

The use of digital storytelling impacts students' technology literacy and social communication skills that can create a meaningful learning process. Indeed, digital storytelling can be a personalized approach because the students are driven to have peer collaborations in terms of creative scenarios and apply innovative learning practices (Kaminskiené & Khetsuriani, 2019). This previous study also underpinned the idea of using a more personalized digital storytelling platform to experience more engaging activities as they are cultivated with their cultural identity. From this empirical data, digital storytelling cannot be simply used as the adoption theory. Still, the adaptation must be accommodated to suit the learners' cultural knowledge and the expected outcomes. The integration of digital storytelling in today's language learning should be coherent with humanities foci that underpin the interactivity between students, critical thinking, nonlinearity, digital literacy, social presence, attitude, and students' participation (Barber, 2016; Nam, 2016).

The elements of local contents elicited their interest when creating the script due to the connection of the local contents with their daily, cultural, and social activities. This immense benefit contributes to students' knowledge of their field of study, particularly on language, increase their academic achievement, and enhance their higher-order thinking and artistic skill (Yuksel et al., 2011). Multimodal elements also play an essential role in energizing digital storytelling as the multimedia figures can arouse the students' interest in speaking rigorously and vividly. It is related to the new multimodal framework for digital storytelling by Kim et al. (2021). They underpin the sociocultural dimensions as one of the frameworks for using functional linguistics in English language learning. The presentation of digital storytelling is abundant in language learning, but the integration of local content-based multimodal approach is still limited. The role of English as a lingua franca has shaped a potential contribution for integrating local values as part of culture entity to develop the intercultural competence for language learners (Tuna & Razi, 2016).

Additionally, integrating local values based on a multimodal approach can synergize the elements in digital storytelling by combining visual, sound, movement, print-based text, and technology with local content elements. It can help EFL learners to obtain nuanced comprehension of the topic and improve their sense of accomplishment and self-esteem (Choi & Yi, 2016). The integration of multimodal elements will automatically help EFL learners develop their communicative skills by organizing their ideas, impersonating questions, conveying opinions, and creating stories in a learner-centred environment (Razmi et al., 2014; Saripudin et al., 2021). The selection of visual, audio, text or speech modes can render a framework for creative learning. The students will not obtain this experience when the storytelling is not mediated by multimodal elements (Marchetti & Cullen, 2015). From these theories and empirical data, educators can utilize digital storytelling as a meaningful technology in the classroom. They can potentially foresee the hindrances when using it in nonmainstream EFL learners (Staley & Freeman, 2017b).

4. Conclusion and suggestions

As mentioned in this study, a limited study examined the empirical results of digital storytelling embedded with multimodal elements and local contents. This study posits some empirical outcomes showing the feasibility and suitability of using digital storytelling based on multimodal elements and local content on students' speaking performance. This study provides initial data that digital storytelling can be utilized as a pedagogical tool for enhancing students' speaking performance. The results show that the experimental group significantly outperformed the control group. It implicated that digital storytelling incorporated with multimodal elements and local contents contributed enhancement in students' speaking performance in the aspects of sufficient control of simple grammatical forms, appropriate vocabulary, and sufficient control of phonological features when using utterances and word levels. Both control and experimental groups used similar materials for creating storytelling and experienced process and feedback activities. It was believed that the contributing factor to students' enhancement in speaking performance was the integration of digital applications mediated by multimodal elements and values depicted from local values.

Digital storytelling with visual and auditory features can benefit meaningful, lively, and energetic language learning processes. There is a favour to include visible and explicit multimodal elements through digital storytelling in the teaching and learning process. The learning process with multimodal elements embodied with artistic, creative and collaborative learning can impart new knowledge and skills to the students. Also, the students were exposed to constructivism learning theory when creating digital storytelling. It promoted students' agency for critical thinking, evaluation, and various point of view. The learning process was not only enriched from pedagogical aspects but also digital and technological aspects. This study also researched students' perception of digital storytelling for language learning. It was worth noting that students perceived it as an enjoyable activity for narrating a story based-local content. Digital storytelling can be best used when the perceived obstacles are examined to provide improved learning strategies. Factors such as digital and technical literacy, language skills, creativity and innovative thinking, and collaborative learning were worth considering when preparing the materials and conducting the teaching and learning activity. The limitations of the study can be traced from the delivery of the teaching and learning process through online platforms. The students were not explicitly situated with peer assessment from their friends. The lecturer gave the evaluation and feedback without using an exit survey for the stages of digital storytelling. The sample of the study was also relatively small, so the data sources cannot be generalized. Further study can integrate peer assessment with exit survey to give comprehensive evaluation and involve a larger proportional sample to provide generalizability of the data sources.

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